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Southwestern MEDICINE

VOL. XXXVI DECEMBER, 1955 No. 12

EDITORIAL

The Physician and Tobacco

Why do we smoke? It is a question that is age-old; that has never been, and in all probability never will be, adequately answered. Do we smoke because we wish to have something in our mouth; is it possible that it is related to the teething ring? Laugh, if you will, but even this has been offered by some of our brethren as an adequate explanation. Is it to decrease nervous tension by occupying our senses of smell, taste, and touch? Charming thought, but again entirely inadequate. Then there are those of us who would say that we smoke so we will not overeat and become obese. A delightful excuse, but how true? Then the younger individuals feel that they should smoke to be sophisticated, or to occupy their hands in the social ritual. When you add all your reasons up, the sum total does not really explain why one uses tobacco. Perhaps it might be said that a man smokes for the same reason he drinks, to decrease the sorrows in life which are far too many, and to increase the pleasures which are far too few. If you can believe this, and rationalize it, then you can at least derive some happiness.

Tobacco Symptoms

However, as medical men, we know that tobacco undoubtedly causes many symptoms, especially those which have to do with the lung and cardiovascular system; and we know that smoking is a factor in cough, hoarseness, sore throat, stuffy noses, nasal discharge, dizziness, deafness, visual disturbances, and a host of other complaints. Therefore it is difficult to condone the use of tobacco simply because one uses it oneself, or because medical journals accept unrestrained advertising from tobacco companies. Statistically, it has been shown that any man past fifty years of age who smokes a pack of cigarettes a day, has fifty times as much chance of developing cancer of the lung, as a non-smoker, and that in 700 cases of lung cancer, only nine were non-smokers. Cancer of the lung causes four times as many deaths in men, and two times as many in women as it did 20 years ago, and in 1953 it caused 22,000 deaths in this country. It has been estimated that the risk of cancer of the lung is from five to fifteen times greater in the smoker than in the non-smoker. With all this accumulated evidence, how can we as physicians still feel that the tobacco habit is innocuous!

2500 Grades

There are approximately 2500 grades of tobacco recognized at this time; and of the four types used in the manufacture of cigarettes, that is, Burley, Maryland, Fluecured, and Levantine, there are 66 grades of Burley alone. The leaf contents of acid, carbohydrate, waxes, and other components vary according to the position of the leaf on the plant stem, weather conditions, regional growth, and cultural practices. Thus it becomes obvious that tobacco and tobacco smoke are a complex chemical problem, because the nicotine and tar contain portions of carbon monoxide, carbon dioxide, ammonias, aldehydes, arsenic, acrolein, formic acid, furfural, glycerine, diethylene glycol and benzopyrine. We cannot answer at this time which of these substances are definitely harmful to man, nor can we by means of any filter or by increasing the length of a cigarette remove these harmful products to a point where the habit is without danger.

Toxic Alkaloid

Nicotine is an alkaloid, one of the most toxic known. It increases blood pressure; it increases pulse rate; it contracts peripheral blood vessels; it reduces vital capacity; it reduces gastric motility, and undoubtedly has other detrimental actions. It is obvious that cigarette smoking cannot but aggravate coronary heart disease, peripheral vascular disease, such as thrombo-angiitis-obliterans; and last but not least, it certainly cannot help an upset digestion; but we as physicians still continue to smoke.

Day in and day out we preach cancer prevention. However, when we realize that when we simply paint the shaved backs of mice with tobacco tar, we produce epidermoid cancer in 44 per cent of the mice, how can we rationalize our own use of tobacco, or our practice of condoning the tobacco habit in our patients. It would be possible to go on indefinitely with the detrimental effects of tobacco smoke on the vascular system, eyes, ears, etcetera. But this would serve no purpose.

Harmful Effects

It has been adequately proven that tobacco can really do us no good from a physical standpoint, and that tobacco produces only harmful effects. It is

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CURRENT THERAPY

Insulins

By Jack A. Bernard, M. D., El Paso

Long acting insulins for the routine treatment of diabetes include protamine zinc insulin, globin insulin, NPH insulin, and Lente zinc insulin.

Protamine insulin, developed in 1935, whose action was later prolonged by the addition of zinc, is slow to act, weak in action, and prolonged in effect. It is satisfactory for the mild diabetic. But for the more severe diabetics where details of insulin timing are important and where reactions and heavy glycosuria are likely to occur, protamine has largely been replaced by the intermediate insulins.

The intermediate insulins are preferred in young diabetics, severe diabetics, and for those who are sugar free in the morning, but show glycosuria in late afternoons and evenings. There is very little difference in effect between the intermediate insulins, (globin insulin, NPH insulin and Lente insulin), and the 2:1 mixture of regular insulin and protamine. The choice lies with the physician and depends upon the results in the individual case.

NPH Insulin

NPH insulin (for Neutral Protamine Hagedorn, after its developer) actually contains about 2/5 as much protamine as does protamine zinc insulin. It is not necessary to supplement its action with regular insulin as in the protamine insulin mixtures. However, if it should be necessary, the ratio of regular insulin would be much less. Actually a mixture of NPH and crystalline insulin produces an effect comparable to that of when the two insulins are given separately. This would be useful for those patients who show hyperglycemia after breakfast.

Lente zinc insulin suspension lacks sensitizing agents such as protamine and globin, and is recommended for those patients sensitive to the other insulins. However occasional allergic reactions are reported. Actually allergic reactions to insulin are thought to be due to impurities as they may be prevented by recrystallizing the insulin in any preparation a sufficient number of times.

Use of Lente

The action of Lente is so close to NPH that it can be used interchangeably. For those patients on protamine, the initial dosage of Lente would be 20 per cent less initially, to be increased. Patients on NPH may be transferred to Lente, using same dosage. Lente may also be mixed with regular insulin if necessary. As an intermediate insulin, it is of course not suitable for emergencies.

Hypoglycemic insulin reactions are more likely to occur between midnight and breakfast with protamine zinc insulin; in the late afternoon with globin insulin; in late afternoon and around midnight with the 2:1 protamine mixture, NPH, or Lente.

ASEPTIC TECHNIC

A Rapid Aseptic Scrub Technique For Nurseries Of The Newborn

Allers, O. E., et al., Am. J. Obst. & Gynec. 60:431, 1950

When employed as a 3 minute scrub, pHisoderm* with 3 per cent hexachlorophene was far superior to liquid soap. The former product not only rendered the hands surgically clean, but they remained so with fewer and shorter scrubs. Incidentally, aqueous Zepharin solution, 1:1000, employed as a brush soak, was inadequate in preventing continued growth of organisms removed from the hands during scrubbing.

*Winthrop-Stearns

Clinical Clippings, November, 1950.

ASTHMA

Treatment Of Bronchial Asthma

Thomas, J. W., Postgrad. Med. 8:130, 1950

In management of moderately severe asthma the author suggests trial of Norisodrine sulfate*. Relief may be obtained with this preparation in patients who fail to respond to Adrenalin. Norisodrine produces few side effects and has prolonged action. Treatment should be carried out cautiously, however, until optimal dosage for each patient is determined.

*Abbott Laboratories

Med. College Of Virginia

Clinical Clippings, November, 1950.

The Physician and Tobacco

(Continued from page 589)

time that the medical profession becomes at least consistent and begins to exert pressure to bring about a decrease and even an abolition of the use of tobacco Why preach about man's using a little cream, the yolk of eggs, and the tremendous effect cholesterol might have on degenerative diseases, when we are allowing him to in all probability injure his arterial system a great deal more by his smoking. Why, if we are going to take steps to prevent cancer, do we condone the use of tobacco with its cancerogenic tars!

The tobacco companies are going to spend money for research. They are going to devise new filters, new methods of manufacture, to continue to sell their product. That, of course, is entirely within their province, but the physician himself must weigh all the evidence and must answer the question of tobacco for himself. He is far more qualified to answer this question than the majority of people.

APHORISMS and MEMORABILIA

Miscellaneous Truths and Concepts

By Andrew M. Babey, M.D., Las Cruces, N. M.

1. "When cerebrovascular lesions have caused death within an hour or two of their onset, they have invariably been brain-stem hemorrhages." Case Records of M. G. H.; *The New Eng. Journ. of Med.;* March 3, 1955; P. 362-3.

2. "It may take a day or two for stiffness of the neck to develop after subarachnoid hemorrhage, and coma may mask it." Cabot Case; *The New Eng. Journ. of Med.;* Jan. 7, 1954; P. 31.

3. "The left recurrent laryngeal nerve may be paralyzed by an enlarged, thrombosed pulmonary artery." (A composite)—Cabot Case; *The New Eng. Journ. of Med.;* Jan. 14, 1954; P. 78.

4. "The growing power of medicine has not simplified practice, as the layman naturally supposes. Rather it has rendered it much more difficult and created many more opportunities for us to make mistakes." A. E. Clark-Kennedy; *Brit. Med. Journ.;* March 12, 1955; P. 620.

5. "If I really thought that I was either under a moral obligation to keep all my patients alive as long as possible, or under a legal obligation always to apply the textbook treatment for the textbook disease, I would give up my medicine to-morrow!" Clark-Kennedy; *loc. cit.;* P. 621.

Amphetamine Habit

6. "An amphetamine habit may sometimes develop in unstable individuals who have come to rely on the drug to restore confidence in the same way as others resort to alcohol when they have to face a difficult situation, but there is no evidence that true drug addiction develops to it, as tolerance, craving, and the withdrawal syndrome are not associated with its use. There is no risk of cumulative ill-effects resulting from even the prolonged administration of dexamphetamine in therapeutic doses." *loc. cit.;* P. 679.

7. "Parturition in the acute phase of this disease increases the risk of extension of paralyses from polio." Conrad Wesselhoeft; *Annals of Int. Med.;* March, 1955; P. 555.

8. "Pregnancy increases susceptibility to poliomyelitis." Wesselhoeft; *loc. cit.;* P. 556.

9. "The Australian investigations also brought out the fact that rubella in the first four months of pregnancy was capable of inducing not only cataract but a pattern of damage during the embryologic formation of the eye, the ear and the heart. This triad, primarily of the lenticular, cochlear and cardiac primordia, gives rise singly or in combination to blindness, deafness, and patent ductus arteriosus. Babies with these congenital deformities are usually poor feeders, and sometimes hydrocephalic or microcephalic mental defectives. If they survive the first year, they are prone to develop dental malformations. All this has come to be known as the post-rubella syndrome." Wesselhoeft; *loc. cit.;* P. 557.

10. "Blindness results from damage in the first six weeks of gestation, deafness and mongolism in the ninth week, patent ductus arteriosus in the first twelve weeks, and dental disturbance in the sixth to ninth week." Wesselhoeft; *loc. cit.;* P. 557.

Gamma Globulin

11. "Pooled gamma globulin derived from the Red Cross is low in rubella antibody, just as it is for mumps and chickenpox (and I might make so bold as to add poliomyelitis), in contrast to a relatively high antibody content for measles and infectious hepatitis. Therefore, this gamma globulin cannot be relied on to protect, although theoretically it might do so. Gamma globulin derived from convalescent rubella apparently offers much more likelihood of protection, just as mumps convalescent gamma globulin offers a measurable protection against mumps." Wesselhoeft; *loc. cit.;* P. 560.

12. "Sometimes the patient is asked first to promise that he will not attempt suicide again. This promise, if given, is usually valueless. It may reassure the doctor but it does nothing to safeguard the patient, who can no more control his self-destructive impulses than the sufferer from an acute appendicitis his pain." I. R. C. Batchelor; *Brit. Med. Journ.;* March 5, 1955; P. 595.

13. "After middle life suicidal gestures are uncommon; in old age they are exceptional." Batchelor; *loc. cit.;* P. 595.

14. "One still often hears it said that those who talk of suicide to other people do not commit it. This is a false and dangerous belief. At least one-third of those who attempt suicide have threatened suicide." Batchelor; *loc. cit.;* P. 596.

15. "All depressions carry a suicidal risk, whether they have clear precipitants—for example, bereavement, financial ruin—or come out of the blue. The risk is often greatest in the early stages of the illness,

and again in convalescence. This unexpected and almost paradoxical risk in convalescence is often forgotten." Batchelor; *loc. cit.;* P. 56.

Sleepless Night

16. "The psychotically depressed individual often wakens at an early hour of the morning, and is most ill then. A suicidal attempt is often prefaced by a sleepless night." Batchelor; *loc. cit.;* P. 596.

17. "Of all the reality fears which may precipitate serious suicidal attempts, the prospect of entering a mental hospital is one of the most noteworthy. The period during which arrangements are being made for a depressed patient to enter a mental hospital, if the patient has got to know what is planned, is a period of real danger, during which he must not be left unattended." Batchelor; *loc. cit.;* P. 597.

18. "If the depressed individual goes unexpectedly on a journey, or wanders away with mind clouded (a fugue), he is suicidal." Batchelor; *loc. cit.;* P. 597.

19. "However long the sentence, the full stop at the end is always the same size. Alas, one cannot say the same about the last patient. His size grows with the lateness of the hour and the number that have gone before him." The Widdicombe File; *The Lancet;* March 19, 1955; P. 612.

20. "Dr. Chester Jones has noted that in certain cirrhotics who also have diabetes, there is a gradual decrease in the insulin requirement as the cirrhosis becomes more severe. When the terminal stage of cirrhosis has been reached, there is often no need for insulin, whatsoever, and this occurs in spite of the fact that the patients are still eating or receiving intravenous glucose. These observations seem paradoxical, since the liver being sicker should be less able to handle blood glucose." Perry Culver; *American Practitioner;* April, 1955; P. 617.

Haemophilia Risk

21. "It is difficult to overestimate the risk attending surgery in haemophilia, Even if the clotting-time is nearly normal, or can be maintained within normal limits by injections of fresh plasma or of antihaemophilic globulin, severe bleeding may still occur." *The Lancet;* April 9, 1955; P. 751.

22. "J. A. Luetscher and B. B. Johnson have now confirmed that in cirrhotics with ascites increased amounts of a potent sodium-retaining hormone, aldosterone, are present in the urine. In experimental ascites in the dog removal of the adrenal glands is followed by profound sodium diuresis and disappearance of the peritoneal fluid." *loc. cit.;* P. 756.

23. "It is wrong to think of ascites as a static collection of fluid separated from the vascular compartment. Studies with radio-active isotopes have shown that within the course of an hour, half the ascitic fluid is exchanged with plasma fluid, and albumin given intravenously to raise the plasma osmotic pressure fails to achieve its purpose because the protein passes rapidly into the ascites." *loc. cit.;* P. 756.

24. "All the power of tongue and pen, and all the wisdom of textbook and lecture, can never teach a doctor the knowledge of when to probe and when to leave alone, when to chide and when to reassure, when to speak and when to keep silent. They are private mysteries with a different solution for every one of the million permutations of personality involved between a doctor and his patients." Richard Asher; *loc. cit.;* P. 758.

Unhappy Women

25. "There is some agreement on the correct dose of digitalis for a tenstone woman fibrillating at 120 beats per minute, but far less agreement on the correct type and dose of conversation for a ten-years unhappily-married woman vociferating at 120 words per minute. Moreover there are only three or four kinds of digitalis, but innumerable kinds of doctor, and even more kinds of unhappy women." Asher; *loc. cit.;* P. 758.

26. "Doctors are told of all sorts of trouble—financial, domestic, or personal—which are beyond their powers to relieve; but all the patient is seeking from them is some remark of the kind: "I don't know how you put up with it all," or "I think it's wonderful the way you manage to carry on." Almost anything can be borne if someone thinks one is wonderful." Asher; *loc. cit.;* P. 759.

27. "When a patient is seeking confirmation for an erroneous belief which does no-one any harm and gives him the comfort of something to blame, it is questionable if much good is done in correcting him; but when he is out for blood, seeking ammunition with which to assail his employers, his doctor, or his hospital, then it is a very different matter. This is an age of compensation; not only out of loyalty to our colleagues should we decline invitations from patients to criticise each other, but for the good of the patients themselves." Asher; *loc. cit.;* P. 759.

28. "It is a good thing to give the patient confidence, but a doctor can pay more attention to the impression he is making on the patient than to the good he is doing him . . . . . It is a greater medical triumph to leave the patient feeling better, but thinking little of the doctor, than to leave him worse, but deeply impressed." Asher; *loc. cit.;* P. 759.

Confidence

29. "Confidence is an infectious thing—the doctor who possesses it is the doctor who can give it to others. It must be sincere. It is not much use pretending you are sure when you are not—the patient can tell." Asher; *loc. cit.;* P. 760.

30. "Yet the doctor should not assume omniscience. I have a notion that doctors do not often

say "I do not know." It is better to tell a man confidently that you don't know than to tell him unconvincingly that you do. Patients can appreciate sincerity and truthfulness more than some people realize." Asher; *loc. cit.;* P. 760.

31. "Another quality that helps a doctor deal with people well is unhurriedness. To give a patient the impression you could spare him an hour and yet to make him satisfied with five minutes is an invaluable gift, and of much more use than spending half an hour with him during every minute of which he is made to feel he is encroaching on your time." Asher; *loc. cit.;* P. 760.

32. "Another type of patient where some probing may be rewarding is the hypochondriac—the patient who makes a hobby of doctors and drugs. The woman who keeps a diary not of social functions but of pelvic functions, the woman who instead of taking up canasta takes up her bowels and who patronizes the great colonic laundries of Harley Street. If the doctor by his talk and his tact can interest her in the world outside instead of the intestines inside he will have achieved something really worthwhile." Asher; *loc. cit.;* P. 760.

Doctor-Patient Relationships

33. "The truth about doctor-patient relationships is, I believe, almost impossible to ascertain. We doctors rarely know what our patients think of us and rarely learn what effect our talk, tact, and treatment have had. "He was so enthusiastic I didn't like to offend him" is commonly the attitude of the patient. . . . . Occasionally we get glimpses of the truth when we overhear a conversation on top of a bus or when patients' remarks are relayed to us by a friend (or more likely an enemy); but in the main we remain ignorant, and perhaps it is happier that we do so." Asher; *loc. cit.;* P. 760.

34. "Thirty-five out of 42 patients who had undergone porta-caval anastomosis were well up to four and a half years after operation, and the recurrence rate of bleeding after this operation was only 5 percent, a much better figure than with any other form of therapy." P. C. Reynell; *Brit. Med. Journ.;* April 16, 1955; P. 965.

35. "A few cirrhotics developed ascites as the result of some recognizable precipitating factor such as alcohol, bleeding, or infections. Here treatment should be directed against the responsible factor. Another small group had intractable ascites which would not respond to the low-salt regime. These were often young patients with an "active" cirrhosis, and their prognosis was extremely bad." A. Paton; *loc. cit.;* P. 965.

36. "Haemorrhage from varices was a well-known cause of hepatic coma, and it was interesting that blood introduced into the stomach of a cirrhotic would reproduce the syndrome." Sheila Sherlock; *loc. cit.;* P. 966.

Public Speaking

37. "I submit that the pathetic and irritating mumbling usually inflicted on the audience at learned medical societies is due to the following factors: (1) nervousness, and the traditional Englishman's reluctance to make himself conspicuous; (2) the fear that emphatic oratory will be ridiculed as conceit or charlatanism; and (3) laziness; many eminent doctors do not seem to realize the importance of clear and emphatic public speaking, and would consider it beneath them to learn how to prepare and deliver an address." Norman A. Punt; *loc. cit.;* P. 974.

38. "Diamox (acetazoleamide) acts therapeutically by inhibiting the reabsorption of bicarbonate in the renal tubules, and so increasing the excretion of bicarbonate which carries with it base (sodium or potassium) into the urine. The most direct "side-effect" of diamox is thus to produce a lowering of the bicarbonate content of plasma—i.e., a metabolic acidosis. In patients on a low salt diet most of the base excreted may be potassium rather than sodium; the drug then fails in its object of reducing oedema, and some potassium depletion may be induced." 'Any Questions?' *loc. cit.;* P. 983.

39. "It is worth noting that the popular view that shaving stimulates the growth of hair is untrue, and in many instances this is the best line of treatment if the (female) patient can be persuaded to adopt it." 'Any Questions?' *loc. cit.;* P. 984.

40. "Every doctor has a set of fairly firm beliefs as to which illnesses are acceptable and which are not; how much pain, suffering, fears, and deprivations a patient should tolerate, and when he has the right to ask for help or relief; how much nuisance the patient is allowed to make of himself, and to whom; &c, &c. These beliefs are hardly ever stated explicitly but are nevertheless very strong. They compel the doctor to do his best to convert all his patients to accept his own standards and to be ill and to get well according to them." Michael Balint; *The Lancet;* April 2, 1955; P. 684.

What Patients Say

41. "I wonder how many specialists care to find out what the patients say to their family doctors about the specialist's methods and behaviour." M. Balint; *loc. cit.;* P. 685.

42. "We all know the extreme case of this urge to help, the furor therapeuticus, against the dangers of which every experienced medical teacher should and does warn his students. On the other hand, very little has been written about the compelling need of certain patients to have a "bad", useless, therapeutically impotent doctor. The reason is that there are

very few practitioners who can tolerate this role, and still fewer who can adapt themselves to it with their eyes open. The overwhelming majority of us, driven by our apostolic zeal, must do everything to impress our patients — and ourselves — that we are helpful, good doctors. These two opposing tendencies — the doctor's need to be helpful and the patient's need to prove that his doctor is no good — usually lead to strain." M. Balint; *loc. cit.;* P. 686.

43. "This fact explains why so many patients regress to surprisingly childish methods in their relation to their doctor or doctors—e.g., to complete subordination, or swearing blindly by the doctor's words; to an almost crazy rebelliousness, ridiculing and belittling anything and everything that the doctor proposes; or to a habit of playing off one doctor against the other. But behind their unrealistic attitude is always the gnawing fear and the abject dependence." M. Blaint; *loc. cit.;* P. 687.

44. "Patients previously resistant to mercurial diuretics may regain responsiveness when a relatively ineffective course of acetazoleamide Diamox has produced hyperchloraemic acidosis. Better therapeutic results seem to be obtained with moderate dosage in patients with congestive cardiac failure due to cor pulmonale; a significant clinical diuretic response may ensue in about half of such patients." The Lancet; *loc. cit.;* P. 707.

45. "Once an infusion of noradrenaline has been started, it should not be terminated abruptly, since the blood pressure may then fall. This is because noradrenaline, like adrenaline, depresses the transmission through the sympathetic ganglia of the impulses which maintain vascular tone, and before the infusion of noradrenaline is finally stopped the transmission must be given time to recover." *Brit. Med. Journ.;* April 9, 1955; P. 896.

46. " . . . in the adrenal medulla there are separate cells for producing adrenaline and noradrenaline and these are innervated by separate fibres with a different hypothalamic representation." *loc. cit.;* P. 897.

Treatable Infections

47. "Treatable or non-fatal infections that may mimic miliary tuberculosis most commonly are infectious mononucleosis, viral pneumonia, brucellosis, subacute bacterial endocarditis, and typhoid fever. The commonest non-infectious diseases which clinically resemble miliary tuberculosis have been, in our experience, sarcoidosis, disseminated lupus erythematosus, malignant disease of the lymphoid system, and occasionally disseminated malignant disease of other types." Edw. H. Kass; *Amer. Practitioner;* May, 1955; P. 750.

48. "The concensus is that as long as a patient has detectable polymorphonuclear leukocytes in the blood stream, he will be able to mobilize an adequate local inflammatory response. The danger of intercurrent infection seems to be largely limited to those patients with total agranulocytosis. As with all such general statements, probably exceptions can be cited, but we have followed patients who maintained levels of one to 300 granulocytes per cubic millimeter of blood for months without evidence of intercurrent infection, and without prophylactic use of antibiotics." Kass; *loc. cit.;* P. 750.

49. "Hospital officials, like mothers, are commonly affected in an adverse way when children cry at the time of their parents' visit. These officials conclude, because children who most of the time while in the hospital are co-operative and well-behaved are upset by the parents' visits, that such visits should be forbidden. Actually, the opposite is true: the apparently calm child is calm because he is frightened, and the calm child who cries and is naughty when his parents visit does so because he feels reassured by their presence." Brian Bird; *Amer. Practitioner;* May, 1955; P. 784.

Adolescence

50. "Adolescence is a time of dramatic change, physical and mental. The teenager is neither child nor adult, nor is he partly each. Rather, he varies from time to time and from piece to piece. Part of him is adult, part is child, and part may be both. Then a shift will occur and everything is reversed. Thus, one day he is primarily an adult, the next day a child, the next he is in between." Bird; *loc. cit.;* P. 786.

51. "A consequence of this rapid fluctuation, as far as talking is concerned, is that when the doctor talks to an adolescent as he would an adult, he pleases the adult in him but hurts the child. And because it cannot be predicted which part of him or on which day he is an adult and which a child, the possibilities for confusion are many. If the doctor decides to address the teen-ager as he would a child, he runs into the same problem: the reaction will be partly pleasure, partly insult — he pleases the child in him but hurts the adult. Thus, literally the doctor cannot win." Bird; *loc. cit.;* P. 786.

52. "He can anticipate the problem, he can point out to the patient in advance the difficulty that exists. He can say, for example, "I don't know quite how to talk to people your age. It doesn't seem fair to talk to you as if you were a child, because in many ways you are no longer a child. But if I treat you completely like an adult, that hardly seems fair, either, because there are still many things about adult life you don't know and can't be expected to know." Bird; *loc. cit.;* P. 786.

53. "A common error in talking with adolescents is to take them at face value. There is no face value in adolescence. There are numerous face values, and all are temporary, all are being tried on tentatively,

as it were, for size, to enable the adolescent to determine what it is he really wishes to be." Bird; *loc. cit.;* P. 786.

54. "The doctor should not fall into the error of regarding an adolescent as a man and assuming that he has a man's fortitude, wisdom and control. These are attributes to which the adolescent aspires, which he should be helped to attain; but because he says that he knows his way around, that he was not born yesterday, and that he knows all the answers, is no reason to believe him. The very fact he says these things is relative proof of his painful ignorance. His claim to knowledge is simply part of his adolescent need to deny imperfection." Bird; *loc. cit.;* P. 786.

Inarticulate Mood

55. "Another serious difficulty in adolescence is a kind of inarticulate mood that comes over so many young people. They may shrug with apparent indifference or grin with embarrassment but remain silent. If an answer comes, it may be "so-so" to everything." Bird; *loc. cit.;* P. 786.

56. "Still another difficulty is the changeability in mood of an adolescent. The first time a doctor sees him, an adolescent may be voluble, enthusiastic, charming, easy to talk to. The next time he is irritable, nothing is any good, and he has nothing to say." Bird; *loc. cit.;* P. 786.

57. "An all-important aspect of adolescence, and one which must be recognized if success in talking is to be achieved, is that all problems at this age are connected in some way with sexual development. In girls, menstruation is a new and frightening phenomenon, and the physical changes, especially the growth of the breasts, awaken strong mixed feelings. A girl may be extremely proud of her womanly development, but equally ashamed of it, embarrassed, and even disgusted. Thus, when a doctor is called upon to examine and to treat an adolescent girl, he can be sure that whatever illness is present will be colored and enhanced by the girl's feelings about her maturing sexuality." Bird; *loc. cit.;* P. 787.

58. "Because there is nothing that is absolutely right to tell an adolescent about masturbation, the doctor has the task of choosing what is least wrong to tell and of working out the best way to tell it. A good way to start is to proceed cautiously." Bird; *loc. cit.;* P. 787.

59. "Regardless of the doctor's personal or professional opinion about the question of masturbation, he is wise to go slow either in condemning or in condoning the practice. No matter what attitude the doctor is ultimately going to express to his young patient, it is always best ot find out first what the patient himself thinks about it." Bird; *loc. cit.;* P. 787.

60. "Be a little careful in contradicting flatly the things a boy has learned about sex from important sources — father, minister, books, etc. Better to interpret what the boy says he has been told than to condemn it outright. Remember that he has no more reason to believe a doctor than to believe other authorities. Contradictions are often harmful in that they add confusion to an already confused mind." Bird; *loc. cit.;* P. 789.

61. "If a truly critical study were made, probably it would be found that in one way or another all parents fall down somewhere and are bad for their children; but often such bad practices can be neutralized by the positive value of a warm, supporting parental relationship." Bird; *loc. cit.;* P. 791.

62. "Likewise, parents think that they caused their child's illness by being bad parents—that somehow if they had been better parents, the illness would not have occurred, and because it did occur, they must have fallen down on the job somewhere. This is a universal belief, and withal such a harmful one, that it is decidely worthwhile for a doctor to watch for it, to anticipate it and to help parents in understanding it. He can do this by telling them that he knows they must feel guilty, that parents always blame themselves, and he can end up by reassuring them that the illness is not of their doing." Bird; *loc. cit.;* P. 794.

Haemolytic Anaemia

63. "It is being increasingly realized that autoimmune haemolytic anaemia may not infrequently be symptomatic of some underlying systemic disorder affecting lymphoreticular tissue or may be associated with disorders of obscure pathogenesis such as DLE or periarteritis nodosa. Indeed, in some patients the haemolytic anaemia has dominated the clinical picture, the underlying accompanying disorder only manifesting itself months or even years subsequently." J. V. Dacie; *The Amer. Journ. of Med.;* May; 1955; P. 812.

64. "The outlook in acquired haemolytic anaemia of the auto-antibody type has been substantially altered by the advent of ACTH and cortisone and there is now little doubt that hormone therapy is the initial treatment of choice for any patient who is seriously ill. However, large doses may have to be given, e.g., in adults up to 300 mg. per day of cortisone orally, or up to 200 mg. of ACTH or the equivalent as ACTH gel in divided intramuscular doses. If and when the patient responds, the dosage should be cut down to the minimum which keeps him in remission so as to avoid side effects. There seems no point in giving very large doses in an attempt to obtain a normal haemoglobin concentration, for the hormones are probably in no sense a cure for the disease. The best that can be hoped for is to control the severity of the haemolysis and to maintain the patient in fair health until spontaneous recovery takes place. This may necessitate continuing therapy for many months or possibly even years." Dacie; *loc. cit.;* P. 819.

ORIGINAL ARTICLES

Increasing the Sensitivity of the L. E. Test By Prolonged Incubation

By Branch Craige, M. D., and Maynard S. Hart, M. D., El Paso

Through an oversight on the part of one of us (B. C.), a tube of clotted blood being incubated for an L. E. test was allowed to stay in the incubator for three and a half hours instead of the customary two. A positive L. E. test was obtained from this specimen, whereas a previous specimen incubated the usual two hours had been negative.

Suspecting that the additional incubation time may have been a factor in producing a positive result, the authors ran two-hour and four-hour L. E. tests in a small series of patients with disseminated lupus and in a group of controls.

The L. E. phenomenon discovered by Hargraves, Richmond and Morton in 1948 (1) has come to be accepted as presumptive evidence for the diagnosis of disseminated or systemic lupus erythematosus. (2)

The L. E. factor occurs in the gamma globulin fraction of the blood of patients with disseminated lupus erythematosus. The L. E. phenomenon consists of the lysis of nuclear material by the L. E. factor, the phagocytosis of the lysed nuclear material by polymorphonuclear leucocytes and the clumping of the leucocytes with the nuclear material in the form of clusters or "rosettes". To produce the phenomenon the following factors are necessary: first is the L. E. factor or substance; second is a source of nuclear material to be lysed by the L. E. factor; third is a supply of viable polymorphonuclear leucocytes to phagocytize the lysed material and lastly is the passage of time to allow the phenomenon to take place.

There are numerous methods of performing the L. E. test. The L. E. substance may be present as patient's plasma, (3,4) gamma globulin (5) whole blood (6,7) or serous exudate (8,9). It may be mixed with a source of leucocytes as bone marrow, (3,10) buffy coat (4,11), or normal blood (11); by utilizing the patients own leucocytes, the unmixed blood may be used either clotted (6,7) or with an anticoagulant (12). The resulting mixture or the unmixed whole blood is incubated before smears are made (11,12,13). However according to Suksta and Conley, (12) the L. E. phenomenon is completed in fifteen to thirty minutes. Zimmer and Hargraves (7) observed that the presence of blood clot increased the number of L. E. cells produced and recommended two-hour incubation of the patient's unmixed clotted blood as the most practical way of performing the test.

Method

The patient's untreated freshly clotted venous blood was incubated for two hours at 37° C. The excess serum was poured off, the clot fragmented and coverslip smears made from the now bloody remaining serum (6). The tube was then returned to the incubator for two more hours and smears again made in the same manner. Both sets of smears were stained with Wright's stain and searched for L. E. cells. Positive L. E. cells were confirmed by three observers.

Results

In several instances the L. E. phenomenon was demonstrated by four-hour incubation of the patient's clotted whole blood when two-hour incubation had failed to produce the phenomenon. (Table I)

A series of control tests in patients with a variety of other diseases, including some on small doses of apresoline, failed to produce false-positive results. (Table II)

Discussion

In some patients with active disseminated lupus the demonstration of the L. E. phenomenon can be accomplished with ease. In other patients, or even in the same ones at different stages in the illness or when under control with cortisone or corticotropin, the rest is often negative. (4) Presumably in such instances the quantity of the L. E. factor which causes the phenomenon is reduced in concentration. Although a brief period may be adequate when this factor is abundant, perhaps a longer period of incubation serves to elicit the nuclear degeneration, phagocytosis and clumping when the L. E. factor is scarce.

Summary

The demonstration of the L. E. phenomenon in patients with disseminated lupus erythematosus may sometimes be facilitated by longer (four-hour) incubation of the patient's clotted peripheral blood.

Table I

Results of L. E. Tests on Incubated Clotted Peripheral Blood in Patients with Disseminated Lupus Erythematosus

Case	Age	Sex	Date	2Hr.	4Hr.	Cortisone
1	60	F.	6/19/53	Negative		No
			6/22/53		Positive	
2	31	F.	1/28/53	Positive		No
			8/6/53	Negative	Positive	Yes
			9/22/53	Negative	Positive	Yes
			11/19/53	Negative	Positive	No
3	31	F.	4/?/53	Positive*		No
			6/?/53	Negative*		Yes
			10/?/53	Negative*		Yes
			12/3/53	Negative	Negative	No
4	27	M.	3/?/53	Negative*		No
			3/?/53	Negative*		Yes
			7/17/53	Negative	Positive	Yes
			7/24/53	Equivocal	Positive	Yes
			9/22/53	Negative	Positive	Yes
			11/13/53	Negative	Positive	Yes
			1/7/54	Positive	Positive	Yes
5	42	F.	6/6/53	Negative*		No
			2/10/54	Negative*		No
			2/24/54	Equivocal*		No
			2/25/54	Negative	Positive	No

* Test performed elsewhere with various brief mixing techniques.

Table II

Results of L. E. Tests on Incubated Clotted Peripheral Blood in Patients with Various Diseases

Case	Age	Sex	Diagnosis	2Hr.	4Hr.
6	37	F.	Post-irradiation, hyperthyroidism	Neg.	Neg.
7	63	F.	Rheumatoid arthritis with nephritis	Neg.	Neg.
8	23	M.	Chronic discoid lupus erythematosus	Neg.	Neg.
9	36	F.	Glomerulonephritis	Neg.	Neg.
10	30	F.	Chronic discoid lupus erythematosus	Neg.	Neg.
11	60	F.	Obesity, hypertensive vascular disease; apresoline therapy	Neg.	Neg.
12	68	F.	Hypertensive vascular disease; apresoline therapy.	Neg.	Neg.
13	64	M.	Hypertensive vascular disease, chronic pyelonephritis; apresoline therapy	Neg.	Neg.

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CARBON MONOXIDE POISONING

Carbon Monoxide Anoxia
Intravenous Administration of Procaine Hydrochloride In The Treatment of Acute And Chronic Effects

Amyes, E. W., et al., J.A.M.A. 142:1054, 1950

Intravenous administration of 500 mg. procaine hydrochloride in 500 cc. of 5 per cent dextrose solution at the rate of approximately 60 minims per minute was responsible for rapid improvement in 17 of 23 patients overcome by carbon monoxide who failed to recover spontaneously after being removed from contaminated atmosphere. Age, condition of the arterial system, previous exposure to the gas, and lapsed time between exposure and institution of therapy are factors which influence the outcome of patients affected by carbon monoxide anoxia.

College of Med. Evangelists, U. Southern Cal. School of Med. & Los Angeles County Hosp.

BARBITURATE POISONING

Immediate Treatment of Barbiturate Poisoning
Use Of Electrostimulating Therapy

Robie, T. R., J. Med. Soc. New Jersey 47:370, 1950

Electrotherapy, utilizing a Reiter CW-47 electrostimulator, was successfully employed in treatment of barbiturate poisoning. Initially, two to three milliamperes are used, the current being increased or decreased according to the patient's reactions. When spontaneous, restless movement occurs, the current is turned off. Necessity of subsequent brief electrotherapy is determined by the degree of consciousness of the patient. The rapidity with which such patients recover is obviously of decided advantage.

Clinical Clippings. November, 1950.

ASTHMA

Oral Procaine Hydrochloride Therapy In Asthma

Schapiro, M. M. & Sadove, M., Ann. Allergy 8:85, 1950

The patient, an 18-year-old girl with intractable asthma, failed to respond to accepted forms of treatment. Parenteral procaine therapy was precluded by sensitivity to the agent as determined by intracutaneous test. Dramatic relief followed administration of procaine hydrochloride orally. The patient has remained symptom-free for approximately twelve months, being maintained on an oral dosage of 25 gr. procaine hydrochloride given before arising and 12½ gr. before retiring. A total of 15,000 gr. procaine has been taken by the patient without demonstrable untoward effects.

American Hosp., Chicago

MEETINGS

Dr. Hollis Brainard of Tucson Is Elected President of Southwest Obstetrical and Gynecological Society

Dr. Hollis Brainard of Tucson, Arizona, was elected president of the Southwest Obstetrical and Gynecological Society at the organization's fifth annual meeting in El Paso, Texas, October 28 and 29, a meeting that was marked by stimulating speakers and informative discussion, excellent attendance, and a healthy exchange of opinions and facts between members of the Society from the far-flung area between Southern California and West Texas.

Other officers elected were Dr. Jesse A. Rust of San Diego, president-elect; Dr. Louis A. McRae of Albuquerque, vice-president; Dr. Raymond Jennett of Phoenix, treasurer, and Dr. Zeph B. Campbell of Phoenix, secretary. Dr. Celso C. Stapp of El Paso was the retiring president.

Members elected to the Council Group B were Dr. Charles J. Newcomb, Tucson; Dr. Gilbert S. Hardie, San Diego; Dr. Hobert Kelly, Riverside, Calif.; Dr. Paul O. Wiig, Reno, Nev.; Dr. R. V. Seligman, Albuquerque; and Dr. Jack R. Bostwick, Brawley, Calif.

Members of the Council Group A will continue in office. They are Dr. LeRoy Bowers, Las Cruces, N. M.; Dr. Gray E. Carpenter, El Paso; Dr. D. Dalton Deeds, San Diego; Dr. Robert L. Moore, Phoenix; and Dr. Thomas C. Rowley, Mesa, Arizona.

Dr. Brainard

Speakers

Speakers at the meeting were Dr. Arthur T. Hertig, Shattuck Professor of Pathological Anatomy and Professor of Pathology at the Harvard Medical School; Dr. Carl T. Javert, Associate Professor of Obstetrics and Gynecology at Cornell University Medical College; Dr. Richard Torpin, Chairman of the Department of Obstetrics and Gynecology at the Medical College of Georgia; Dr. Louis W. Breck of El Paso; and Dr. Robert F. Boverie of El Paso.

Dr. Brainard, the new president, was born in Cedar Bluffs, Neb., and received his B. S. from Midland College, Fremont, Neb., and his M. D. from the University of Nebraska Medical School. He interned at Kings College Hospital in Brooklyn, N. Y., and took his residency in the Long Island College Hospital in Brooklyn and in Kings County Hospital.

He began the practice of medicine in Little Falls, N. Y., where he remained for one year, and then moved to Tucson in 1941. He served for four years in the Army Medical Corps, with 22 months in the European Theater, emerging from the service with the rank of captain. He returned to Tucson following the war.

Dr. Brainard is president of the Arizona Chapter of the American College of Surgeons and is a Diplomate of the American Board of Obstetrics and Gynecology. He is a past president of the Tucson Obstetrical and Gynecological Society. He is married and has two daughters.

The Society will hold its 1956 meeting in Tucson. Dates for the convention have not yet been determined.

Official Publication

At its business meeting, the Society voted to make Southwestern Medicine its official publication. Southwestern Medicine, which is also the official journal of the Southwestern Medical Association and the El Paso County Medical Society, is distributed to physicians in a large part of the geographical area covered by the Southwest Obstetrical and Gynecological Society and it was the concensus of opinion that the rapidly growing regional journal would serve as an excellent medium for the exchange of scientific material by members of the Society. It was also felt that recognition of Southwestern Medicine by the Society and the contribution of scientific material to it by the society's members would prove of value to the journal in serving the general practitioner in the Southwest.

Southwestern Medicine is distributed to physicians in West Texas, New Mexico, Arizona and Northern

(Continued on Page 610)

Occupational Medicine, Yesterday, Today and Tomorrow*

By Jerome W. Shilling, M.D., Los Angeles

It is said there is nothing new under the sun, and it can be further stated that such holds true for Occupational Medicine.

Hypocrates — 460-370 B.C. — recognized, described and treated lead poisoning. Ramazzini, the Patron Saint of Industrial Medicine, studied, described and instituted preventive measures concerning occupational exposures. He admonished all physicians to ask, "Of what trade are you?" Recognition and acclaim by his confreres, and by tradesmen as well, was genuine and widespread, and at the time of his death in 1714, he left a monument worthy and enduring. Were Ramazzini to be asked to adopt a favorite daughter two centuries later, we are all sure it would be Dr. Alice Hamilton, who in a similar manner as our Patron Saint, attacked the problem of exposures and industrial health at the "grass roots."

In these United States, the first industrial work place was a glass bottle factory, Jamestown, Va., 1607. The first article published on Industrial Medicine was "On the Influence of Trades, Professions and Occupations in the United States in the Production of Disease, 1837"[1].

Germany First

In Germany, Bismark in 1884, introduced the first Industrial Insurance Act and shortly thereafter during the same period, Switzerland likewise followed. The railroad surgeon came into being in about 1870. In general, their duties were twofold: To treat the multiplicity of injuries and to attest as to the physical fitness of those who were to operate the trains. The Pennsylvania Steel Company appointed the first Plant Surgeon, Dr. Wm. J. Middleton in 1884. The Vermont Marble Company in 1895 was the first to employ an industrial nurse.

Most States inacted compensation laws during the second decade of this century and others followed soon after. There has been considerable difference in one State as compared to the other. However, with the lapse of time this breach, particularly in respect to interpretation, is gradually closing. In basic intent and purpose all are on common ground. With the occasional exception these statutes are as originally inacted, however, in instances their judicial interpretation has varied or changed considerably, possibly resulting in circumventing their original broad overall intent and purpose.

Modern Industry

With World War I came modern industry with which we are familiar today; new machines, materials, processes and products. We faced side-by-side new hazards; mechanical, gases, solvents, dusts and metals. At about that time the safety engineer, industrial hygienist and industrial toxicologist as we know him today was born. This triad, working hand in hand, face, solve and will continue to master a challenge which is dynamic rather than static.

During the early and adolescent period of Industrial Medicine, there were connotations not of savory nature. The "company doctor", and in instances with reason, was looked upon as one who did not have sufficient ability to survive in the open field of private practice. Too often his interests were in treatment only. Waiting for an accident and then treating the injured as best he was able. Frequently alluded to as a "finger wrapper." Little or no effort was spent on safety prevention, placement, diagnosis, or in short, studying or evaluating the man and his environment as a whole. Fortunately and of necessity, such an approach is the rare exception rather than the rule today.

Railroad Surgeons

The American Association of Railroad Surgeons founded in 1888 recently held its 66th Annual Meeting. As indicated, the early railroad surgeon was chiefly concerned with wrecks, emergencies and injuries. His environment, stature, training, tools with which to work, concept and endeavors are a far cry from that of his forebears.

With the elapse of time, industry is recognizing more and more the practical necessity of the best and most complete Industrial Health Program as an essential to survival. The doctor, nurse, industrial hygienist, toxicologist, labor and management are becoming more and more a functioning team. This metamorphis is resulting in a horizon more broad and deep.

Industrial Physicians

The American Association of Industrial Physicians and Surgeons (since April, 1951, Industrial Medical Association) was organized in 1915. Although in the earlier days the emphasis was on surgery of trauma, the purpose being, then and now, to raise the standards of Industrial Medicine. The first Annual Meeting was held in Detroit, June 9, 1916, with 125 industrial physicians in attendance. The 39th Annual Meeting was held in Chicago, April 24-30, 1954. The meeting was in conjunction and participation with the Annual Health Conference, composed of Industrial Medical Association, American Industrial Hygiene Association, American Conference of Governmental Industrial Hygienists, American Association of Industrial Nurses, Inc., and American Association of Industrial Dentists. At this last conference there were 674 Industrial Medical Association members registered and a total registration of 2392. This annual convention or conference should be considered as nothing less than a "refresher

* This is the first of a series of three Articles on Occupational Medicine by Dr. Shilling.

course" or a post graduate institute of training. The theme of the 39th Annual Meeting, and so planned for the 1955 Meeting in Buffalo, was and is to be "Management, Medical, and Labor Relations." For any of you here who may be sufficiently interested, there are available reprints of many of the papers presented. However, most of these papers have appeared in subsequent issues of Industrial Medicine and Surgery. The total membership in the Industrial Medical Association in 1916 was 150 compared to 2800 in 1954.

Industrial Medicine

On October 5, 1932 appeared the first issue of Industrial Medicine and Surgery, which has since become the official publication of the Industrial Medical Association. The 21st Anniversary Issue of October, 1953, should be a "must" in the library of the physician, management, labor, attorney, or any others directly or indirectly involved in industry. Currently there are a score or more of periodicals pertaining to Industrial Medicine, Hygiene, Toxicology, and Safety, with additional impetus created by the many contributions in the "Journal of American Medical Association." Added to the above, there are many other contributions by various state and labor agencies.

In 1926, the American College of Surgeons appointed its Committee on Industrial Medicine and Traumatic Surgery, and adopted the minimum standards for medical service in industry. Surveys of industries were later carried out and those meeting the minimum standards were so recognized and awarded a certificate of approval.

Industrial Health

In 1937 the American Medical Association created the Council on Industrial Health, the goal being to coordinate all medical efforts in the industrial field. In 1939, the Council sponsored its first Annual Congress on Industrial Health, the most recent meeting being the 14th was held in Louisville, Kentucky, February 23-24, 1954. Of the 300 participants, there was a large representation from state and county associations. One of the major enterprises being, education of the general medical profession in the significance of Occupational Health in an obviously increasing industrial culture in the United States and Canada. Definition, scope and general relations of the physician, employer, employee, nurse, consultant, health agencies, workmen's compensation, rehabilitation agencies, and medical organizations have recently been published. Guiding principles for physicians, medical organizations and others interested in medical service and relations are included[2].

In June, 1945, the American Foundation of Occupational Health (now Occupational Health Institute) was organized. It was conceived as an instrument to improve teaching of Occupational Medicine. Survey and certification of industrial medical services was included later. (The latter was turned over to the Industrial Medical Association in 1951 by the American College of Surgeons who had conducted the program since 1932.) To afford counsel to physicians, management, or any other group or individual involved or interested is included in the broad overall endeavors of the Occupational Health Institute.

Brief Summary

The foregoing is an incomplete brief summary of Industrial Medicine of yesterday and up to the present.

In considering Occupational Medicine today, we think first in terms of definition, objectives, purposes and at the same time at least a glimpse into the future. The terms, company doctor, industrial physician, chief surgeon, private practitioner, medical director, industrial medicine, industrial surgery, a combination of both the latter, and Occupational Medicine comes to mind.

Environmental Medicine

With the term Environmental Medicine, Johnstone takes one more step forward. Johnstone, R. T. [3] states; "Industrial Medicine contends that we must cease looking upon the working man as an eight-hour-a-day problem, in which only his occupational environment is of concern. No longer can the industrial laborer be classified as a mechanical component of the machinery of industry. We have realized that the worker is a member of society, whose working, playing, and living is a twenty-four hour problem. Such a concept entails consideration of his faculties, his capacities as well as his deficiencies. It includes a program which will safeguard his hearing, his vision, his nutrition, his skills, aptitudes, experience, intelligence, and emotions. Man's work is related to his home, his social environment, his philosophy, his economies, and his happiness. Adjustment of these relationships in the largest segment of our adult population can be achieved by utilizing the facilities which industrial medicine has to offer." Man lives 168 hours each week and is on the job an average of 40 hours or one fourth of the time.

Prevention and Maintenance

In addition to treatment of industrial trauma and occupational disease, the broader scope, namely that of prevention and maintenance, is at the forefront. In fact in a properly conceived industrial medical department of today, actual treatment of occupational injury or disease is by far the smaller fraction of the total endeavor. These endeavors among others are directed at environment, placement, health education, employee counseling, rehabilitations, expanded use of consultants, medical public relations, liaison and rapport in respect to physician, employer and management.

One may ask, why is a paper such as this read in El Paso, Texas? In considering this vast area serviced by members of your association, the uninformed may go no farther and without complete analysis, think only in terms of "the wide open spaces." I remind you of the fact that now stand plants manufacturing

everything from buttons to bombs on ground where less than a decade ago stood the farmers' fields. grazing acerage, wastelands, and the like. Such a shift is not occurring without reason. The major factors in this movement are: (1) Availability and price of property. (2) Improved transportation and communication facilities making such a change possible and practical. (3) Realization of added man power from a reservoir not heretofore fully utilized. (4) Favorable effect on traffic movement and congestion. (5) Last and not least, decentralization is an appreciable consideration in our National Defense program.

New Fields

Aside from manufacturing; mining, lumbering, and agriculture have been carried on on a major scale in this region. Agriculture of today is not confined to the sowing of seeds, walking behind the plow, and harvesting of crops, as in the past. The modern farmer is a mechanic working with both small and large machinery. Exposure to toxic materials compounded in various pest exterminators is all but a daily occurrence in this occupation.

It is not necessary to remind this group that the population of the Southwest has more than tripled since the turn of the century, and that the outlook is for materially greater expansion during future decades. It further holds that such a population is not sustained by mining, lumbering, and agriculture, which in turn spells further spread of manufacturing without limit.

Major Role

The private physician, and in particular the general practitioner, has and will continue to play a major role in Industrial Health in detail and in scope. In fact, the private physician is no less than the backbone of Industrial Medicine. At the close of 1953, 218,522 physicians were licensed to practice in the United States[4]. Of these 156,333 were in private practice. The remaining 62,189 comprise 23,707 full time physicians in government service, assignments in research, teaching, insurance, health departments, and industry. Interns, residents, hospital administrators, and those retired, account for the remaining 38,482.

Although this problem is gradually resolving, there is an element of confusion in the minds of both the private practitioner and the physician in industry regarding the proper role of the industrial medical department.

In discussing the private practitioner, we consider at least two groups: Those who see few or no occupationally connected cases, and the group that cares for a number of industrial cases as a part of their general medical practice. The purpose and aim in either group is basically the same; that is doing what is best for the patient. There is no divergence in purpose in the in-plant physician and the personal physician.

The industrial physician is complementary, and not in any manner, in a supplementary position in relation to private practice.

Case Finding Projects

It may be unnecessary to remind you of the case finding projects carried on in industrial medical organizations, including detection of neoplasms, disease of the metabolism, tuberculosis, cardiorenal disease, arthritis and the like. The industrial physician is particularly concerned with prevention and diagnosis while his confreres, the private practitioners, are particularly concerned with diagnosis and treatment. In acute nonoccupational illness and injury, the industrial physician confines his endeavors to diagnosis, first aid, and emergency measures when necessary; and when indicated, refers the individual to his personal physician for definitive procedures. It is estimated that, in both acute and chronic cases, industrial medical services refer annually better than one employee for each employee on the payroll to the individual's chosen personal physician.

Basic Triad

The basic triad of any industry is, good machines, the best of materials, and efficient labor. Without the latter, industry must and will fail. If experience of the worst plants were brought up to the experience of the best plants, the improvement would be real and far-reaching. The industrial physician is keenly concerned and directs his efforts to holding or raising the human functional element to as high a level as is possible. With an average of $12,800 investment per worker, and an average wage of $67.97 a week, the wisdom of this effort becomes quite apparent. Management is becoming as much or more concerned over the performance ability of man as that of machine; and further, management by necessity and demand, is interested in and must produce the best product or perform the best service in a sound and economical manner. Another time worn formula: Man = Job; must amend to read: Man plus health = Job. Man plus some health = Some job. Man plus no health = No job.

15 Million Exposed

Approximately 66 million people are employed in these United States of which 15 million are exposed to hazardous substances. Johnstone, R. T. [5] states; "Excluding the child, the elderly, and the infirm, most all are workers in the factory, field, office, school, and the home. The avocation also warrants mention. All have their exposures."

Industrial Medicine in the plant has not and will not meet the demand. By far the great bulk of required services will continue to be and in increasing amounts, furnished by the private practitioner.

There are but 3,300 industries that employ more than 1000 men with an aggregate of 8.5 per cent of the employed population. There are 3,000,000 enterprises that employ fewer than 1000 men, accounting for the remaining aggregate of 91.5 per cent. Statistics further reveal that in those industries em-

ploying 2,500 men or more, 46 per cent retain full time physicians. Of those that employ 500-1000, 59 per cent are serviced by an on-call arrangement. In this group but 1 per cent employ full time physicians. Among those who employ 500 or less, 41 per cent have an on-call arrangement. There are but 2,500 full time specialists engaged in Occupational Medicine. To supplement this there are 5,000 part time physicians engaged in in-plant service.

Wide Open Spaces

Again mentioning "the wide open spaces", it does not take much calculation to come to the conclusion that this vast field must be within the scope and the horizon of the private practitioner endeavors.

All but 100 per cent of general practitioners see and service at least an occasional industrial case. An aggregate of 95 per cent of all private practitioners treat more than the occasional case. It is an established fact that 80 per cent to 90 per cent of industrial cases are treated by this group. A total of 90,000 cases annually are treated by the general practitioner with an average of 50 cases a year to each individual physician.

The foregoing facts attest as to the necessary and essential reasons for the private practitioner to well familiarize himself with the current concept, scope, and requirements of Industrial Medicine; the objective and functions, including their many ramifications. This to include:

1. Preparation to render proper curative and reconstructive service.
2. Take increased interest in the preventive aspect of industrial health.
3. Acquaint ones self in general with hazards, exposures, and methods of control (not that any one of us is capable of learning or retaining specific knowledge covering this broad field in its entirety, however, it is incumbent upon all of us to well familiarize ourselves with all elements of any particular segment with which we are dealing.) Remember, small plants must rely on guidance as well as service from the private practitioner. Whether you see an occasional industrial case or whether on a part time basis, remember further that there is always a challenge, a new horizon and a reward.

Sound and Basic

Occupational Medicine of today is nothing more or less than sustained tenacious adherence to sound basic medicine, and not unlike other special medical endeavors, there are particular and specific ramifications requiring special knowledge and attention.

Before looking toward tomorrow, let's pause and "back track" to the 19th century. Steam power, the telephone, electric light and power, and the automobile all invented, developed, and put to use prior to the turn of the century. Du ng the last decade of this century, suggestions were made to close the patent office as all possible had been invented. Comments on such as this, here; would be quite inordinate.

I am advised that only statisticians, the weatherman, and fools predict things to come. However, I will leave the following thoughts to ponder in respect to tomorrow: There will be further and added impetus to teaching Occupational Medicine at both the undergraduate and post graduate level. As those with formal post graduate training increase in numbers, those who have "climbed to the top of the ladder" by the "self made" or apprenticeship's route will be relatively few.

Speaking of "back tracking", this does not alter what has been said concerning the private practitioner. He is, and will continue to be, the backbone of Occupational Medicine, at least during the time of your children and your childrens' children.

Master Over Matter

The furtherance of our culture, as we know it, will be predicated upon man's continued ability to be master over matter and this, I predict, will hold.

Many, if not all, of today's occupational diseases and mechanical hazards will be all but, if not completely, conquered. However, those that are to follow will keep their guard up to oppose and surmount the obstacles resulting from the creation and use of new machines and substances.

There will be an increase in in-plant medical service of all descriptions and with this numerical advance, quality will keep astride. Day by day there will be added to the roll, industrial medical services certified as meeting a recognized and established standard. Parallel to all of this, more and more, full time, part time, and on call physicians will have heeded the call. As for the private physician not in the plant, there will be an increasing demand for his service in this broad and expanding field. This fact will not only further be recognized by management and the physician within industry, but by the private practitioner as well.

Finally the crux of all this is people, yes, 66 million of them. Irrespective of our special field of endeavor, we have a common goal. The prime purpose and objective is an attempt to keep abreast of progress as it marches on. It is as simple as that. The road ahead is straight and clear, the horizon broad and deep.

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MONTHLY CLINICAL PATHOLOGICAL CONFERENCE
EL PASO GENERAL HOSPITAL

October 20,1955

FREDERICK P. BORNSTEIN, M. D., EDITOR — CASE NO. A-487
PRESENTATION OF CASE BY DR. J. EDWARD STERN

History - Dr. Nathan Kleban:

Because of a disturbed psychic state with combativeness which the nursing staff was unable to cope with on an open ward, a 59 year old white married farmer-turned-carpenter was transferred from another hospital to El Paso General Hospital for his first admission here on June 12, 1955.

Six months before admission the patient began to be bothered by occipital and cervical pain, which spread to involve his entire back two months before admission, when light-headedness also appeared. Five weeks prior to entry the patient experienced rhinorrhea, pain over the left maxillary sinus area followed by numbness, and a cough. For this he consulted a doctor and was treated for a maxillary sinusitis. One week later the patient stopped working, became lethargic and cranky, and continued to complain primarily of back pain localized to no particular region.

Two weeks before admission the patient was referred to another doctor who found the patient to be diffident and lethargic, complaining mildly of distress over his entire back, of giddiness and fatigue. The patient preferred to lie on the examining table, resented being disturbed for examination but was reluctantly cooperative, appeared to be moderately chronically ill but in no distress. Temperature was 98.0 F. (0) ; pulse 76, sinus rhythm; respirations 18, regular; B. P. 145/105 left arm, supine; weight 183 lbs. There were bilateral lenticular opacities; the eye-grounds were not satisfactorily visualized; there were no gross visual field defects. Complete dentures were worn. The A-P diameter of the chest was increased, percussion note was hyper-resonant, breath sounds were distant and diaphragms low with limited excursion. The prostate was enlarged one plus. There were no penile scars. Romberg was negative. Babinski reflex was not elicited. Cranial nerve I was not tested. The balance of the neurological examination was not remarkable. There was no motor weakness. Sensory testing results were not considered reliable because of the patient's resentful indifference.

Condition Deteriorates

During the next few days the patient became more lethargic, which alternated with restlessness. On several occasions, while attempting to walk to the bathroom, he collapsed, falling in no particular direction, was momentarily unresponsive once, did not strike his head in the process of falling. Nocturnal auditory and visual hallucinations were noted by the family. Several episodes of jerking and twitching occurred, which lasted for several minutes, were accompanied by irregular breathing and unresponsiveness, but without focal Jacksonian characteristics, and seemingly no tonic or clonic muscular movements.

The patient was admitted to another hospital one week before his transfer to El Paso General Hospital annex. Temperature was 99.0 F. (R); pulse 76, regular; respirations 12, Cheyne-Stokes in character, with apnea lasting up to 15 seconds; B. P. 190/105, right arm, supine. He appeared critically ill, was oriented for person and place but not time, was restless, inattentive, but at times cooperative. He was unable to name all objects placed in his right hand. Speech was not slurred. Pupils were 7 mm., equal, reacted sluggishly to light. There was a-v nicking, narrowing of arterioles, hemorrhages and exudates, and a 2-Diopter papilledema bilaterally. The neck was resistant to anterior but not lateral flexion. The left common carotid pulsation was stronger than the right. There were a few basilar rales. There were contralateral Brudzinskis, suggestive neck Brudzinski and Kernig, equivocal right Babinski.

Lumbar Puncture

On the 2nd hospital day a lumbar puncture was performed, after sedation, with two orderlies and a nurse attempting to hold the struggling patient in the right decubitus position. Opening pressure was 540 mm. CSF, closing 160 mm. CSF. 10 cc. of crystal clear fluid were removed slowly through a #20 spinal needle. The patient's temperature rose to 101.4 F. (R) on the second day but was not above 99 (R) during the last three days. B. P. fluctuated between 130-180/95-110. Respirations varied from regular to Cheyne-Stokes. Contact with environment, orientation for person, place and time were completely lost. The patient was generally negativistic, restless, delirious, numbling; his fingers plucked the air, threw off the covers, and fondled his genitals. At times he was cooperative and followed spoken commands. No motor weakness was noted. By the 4th day it became evident that vision, except for perception of light, was totally gone. A Babinski was transiently elicited once on each extremity. The patient climbed over side rails several times without falling. At the end of one week the patient was moved to El Paso General Hospital.

In remote past the patient was said to have had typhoid fever. In 1945 he fell from a tractor, fractured the right wrist, and injured his back. He had also experienced intermittent "sinus trouble" for 10 years, with pain in the right maxillary sinus region. From about 1945-50 he was unable to work because of

Figure 1

"back trouble" and "nervous indigestion". For the next five years he worked fairly steadily as a carpenter, although he moved about a good deal. He had been a life-long sufferer from "constipation." His father was said to have died from diabetes and Bright's disease. Bromide ingestion was denied.

Physical Examination

On admission the vital signs were: Temperature 99.0 (R); respirations 18, regular; pulse 84, regular; B. P. 170/110. The patient was disoriented, combative, blind; pupils were 6 mm., reacted sluggishly to light; there was 2 D elevation of the nerve heads with pallor.

Hospital Course

He became generally weaker, exhibited transient twitchings and myoclonic movements. On the second day the lumbar puncture was repeated. Two orderlies were unable to hold the patient quiet for the procedure. Opening pressure was 500 mm. CSF, closing pressure 200 mm. CSF, after 10 cc. of cerebrospinal fluid was removed slowly. Cyclic respirations recurred; combativeness alternated with stupor; there was incontinence of urine and feces. On the fourth day it was noted that speech was slurred, the mental state clouded, echolalia was present, retinal hemorrhages, and absent light reflex were detected. The tongue deviated to the left, the left side of the mouth sagged, pain perception was absent on the left side of the face and pupillary reflexes could not be obtained on the sixth day. The corneal reflex was absent on the left, weak on the right with left side of face weak on the seventh day.

A neurosurgical consultant saw the patient on the ninth day and made the following notation: "Left hemiparesis including left face. Mental confusion. Right optic nerve head seen. No papilledema. Left not seen. Right retina not well seen. Left pupil didn't react to light. Right one may have very sluggishly reacted . . ."

Medication given the patient during his stay in both hospitals included aminophylline rectally, papaverine, CVP capsules (vitamin C and citrus flavonoid), and a total of 21 million units of procaine penicillin i.m. over a 17 day period.

On the 13th hospital day the patient was given Demerol 75 mg. and scopolamine gr. 1/150. When he reached the operating room he could not be aroused, pulse was thready and B. P. unobtainable. The pulse became stronger and slower, B. P. rose to 130/80, but the patient remained in coma when i-v glucose/D. W. was started, vasoxyl given i.m. and oxygen by mask. Ventriculograms were obtained. Several hours later respirations became Cheyne-Stokes, pulse thready and the B. P. dropped. He expired approximately five hours after the procedure.

Laboratory and X-Ray

May 31, 1955: (office) Urine: Albumen 1 plus, sugar negative.
Chest fluoroscopy: Diaphragms low, heart not enlarged, lungs clear.
June 5: (another hospital) Hb. 15.3 gms.; RBC 5.3; WBC 14.4; stabs 3, segs 71, lymphs 26.
Urine: yellow, hazy, acid, 1.007, albumin 3 plus, sugar negative, WBC 2-4/HPF, RBC innumerable.
BUN 22.9 mg. per cent, FBS 120 mg. per cent.
June 6: Urine: yellow hazy, acid, 1.010, albumin 3 plus, sugar negative, WBC 2-4/HPF, RBC innumerable.
Mazzini: Negative.
Cerebrospinal fluid: Pandy positive; protein 90 mg. per cent; Wasserman: 1.0 c.c. doubtful, 0.5 c.c. 2 plus, 0.25 c.c. 3 plus; colloidal gold: 0-0-0-1-2-2-1-1-0-0
Creatinine: 1.2 mg. per cent
CO_2 combining power: 57 mEq/L, 40 mEq/L
June 7: CO_2 combining power: 43 mEq/L
June 13: Hb. 13.8 gms.; RBC 4.5; WBC 11.2; segs 83, lymphs 16, monos 1
Kline exclusion negative
(EPGH)
June 14: Creatinine 1.5 mg. per cent; CO_2 combining power 24.4 mEq/L; serum albumin 6.7 gms. per cent, serum globulin 2.3 gms. per cent
Cerebro-spinal fluid: Polys 3; lymphs 40; Pandy positive; protein 115 mg. per cent; Kolmer negative; colloidal gold curve negative.
Skull films: "Radiographic examination of the skull is negative for evidence of depressed fracture or increased intracranial pressure. No significant intracranial calcifications can be identified. Reexamination is recommended for further evaluation."

June 20: Electroencephalogram: "This record is severely irregular and disorganized with much stupor activity and hemisphere asymmetry. The right hemisphere shows focal depression while the left hemisphere shows higher voltage and slower activity simulating sleep at times when we know he was awake . . . Bipolar studies show marked asymmetry of the contralateral sides..."

June 24: Cerebrospinal fluid: 4 lymphs; no organisms seen on Gram stain smear; Pandy positive; protein 60 mg. per cent; Kolmer negative; colloidal gold curve negative.

Ventriculograms: "Following the instillation of air into the ventricular system by means of a trephine on the left parietal region there is good visualization of the right lateral ventricle, its anterior horn, body and temporal horn. The ventricle is somewhat dilated consistent with an internal hydrocephalus. There is visualization of the body of the left lateral ventricle, the anterior horn cannot be identified. The temporal horn of the left lateral ventricle is not visualized. The pineal is apparently somewhat elevated. The third ventricle is poorly visualized but is displaced towards the right. The fourth ventricle is well visualized and occupies its usual position. These changes are consistent with a space-taking lesion lying in the middle fossa displacing the third ventricle to the right and preventing filling of the anterior horn of the left ventricle. There is no evidence of bone erosion of the greater wings of the sphenoid. No intracranial calcifications can be identified." (Fig. 1)

Differential Diagnosis
Dr. J. Edward Stern:

This case is rather difficult because of the many non-specific, non-localizing symptoms. Dr. Kleban has prepared a very excellent protocol and I know that when he wrote the case up he thought the ventriculogram would give away the diagnosis. Actually, there are so many points of interest that even with the help of the ventriculogram, a number of interesting points remain to be discussed.

Before going into the case itself, I should recall that space-taking lesions include such conditions as brain abscess, tuberculoma, syphiloma and parasites, such as echinococcus and cysticercus, as well as tumor. There are two very important conditions, very important from the standpoint of the internist, which may mimic space-taking lesions: hypertensive encephalopathy (with hemorrhage, thrombosis and edema) and polycythemia vera.

One of the matters about this particular patient that impresses me is a theoretical question as to why some patients with brain tumor and severe distortion of the ventricular system retain relatively good intellectual function and relatively good emotional control, while some patients lose these attributes as happened in this case.

Anatomical Sketch

In order to pursue a certain line of thought, I would like to review an anatomical sketch from Gray's "Anatomy". In this sketch, you see the three cranial compartments. I would like to direct your attention to the posterior fossa, the basisphenoid and slope of Blumenbach, upon which rests the pons, the petrous apex and the posterior clinoid process. You will recall that a small ligament sometimes joins the petrous apex and the posterior clinoid process, a structure which used to be called Gruber's ligament. Under this ligament is a small canal known as Dorello's canal, through which runs the sixth cranial nerve. Near the apex of the petrous bone is a small area called Meckel's cave which lodges the Gasserian or semilunar ganglion. Before the days of antibiotics, this particular location was sometimes of intense interest in that suppuration of the petrous apex secondary to mastoid infection caused pain in the eye and paralysis of the external rectus muscle, components of the Gradenigo syndrome.

Note should be taken of the fact that the structures in this location, the pons, cerebellum and Gasserian ganglion are in close relationship with the temporal lobe. I mention this because the visual pathway, in its course from the lateral geniculate nucleus to the calcarine cortex, passes through the temporal lobe where its involvement may produce formed visual hallucinations.

I have here a photograph showing space-taking lesion of the rostral portion of the cerebellopontine angle with distortion and involvement of the pons, cerebellum and Gasserian ganglion. Another photograph shows a tumor originating in the rostral portion of the angle which has penetrated the petrous bone and compresses the temporal lobe.

Symptoms

Let us now review certain points in the protocol and discuss them. Occipital and cervical pain may occur in tumors of the posterior cranial fossa. Stiffness of the neck may be an important symptom of such tumors. Peculiar posture of the neck is sometimes observed, and it is assumed that patients strike this posture to relieve pain and headache, perhaps by improving drainage through the foramina in the roof of the fourth ventricle. Numbness in the region of the left maxillary sinus can be an important localizing symptom indicating involvement of the second division of the left fifth cranial nerve. An expanding lesion in the posterior cranial fossa could result in compression of the pyramids against the tentorium, either the pyramid of the same side, the opposite side, or both. In this way, one might see positive Babinski signs on either or both sides and, from time to time, decerebrate rigidity. Pain in the back is an interesting symptom which is sometimes thought to be due to stretching of the dorsal roots, and it has been described in cases of subarachnoid hemorrhage and inflammatory processes. Many years ago, pain in the back of an electric shock-like type was thought to be

specific for multiple sclerosis and was known as Lhermitte's sign. I have never seen it. Backache, taken in conjunction with hematuria, might make one think of a primary neoplastic lesion in the urinary tract, for example, of a clear cell carcinoma of the kidney or hypernephroma.

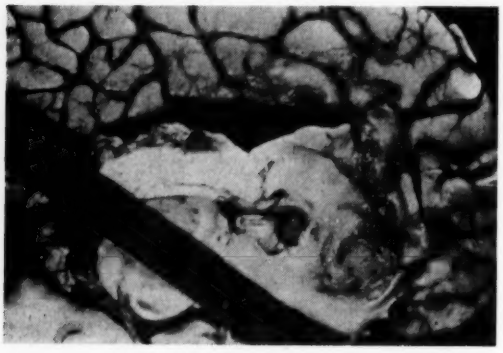


Figure 2

Commendable

Now the fact that this man had for many years had "back trouble" and "nervous indigestion" makes it all the more commendable that, when he presented the present psychiatric picture, a search for an organic mental syndrome was carried out.

The presence of choked discs, retinal hemorrhages and elevated pressure of the cerebrospinal fluid, indicate, of course, the presence of increased intracranial pressure. The fact that the tongue deviated to the left indicated a paralysis of the left twelfth cranial nerve; there is evidence also of paralysis of the left seventh and fifth nerves. The high level of protein

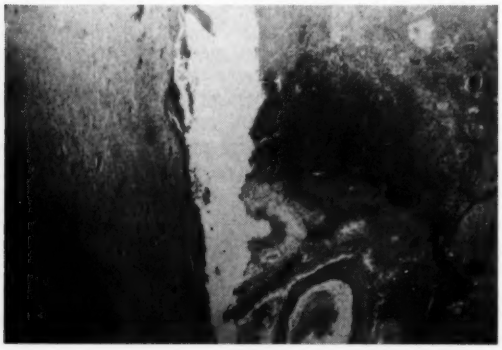


Figure 3

in the cerebrospinal fluid would go well with a tumor. The electroencephalogram described as showing slow, stupor waves and electrical asymmetry of the two hemispheres would also fit in with diagnosis of tumor.

In summary then, I would say that we are dealing with a space-taking, intracranial lesion, a neoplasm

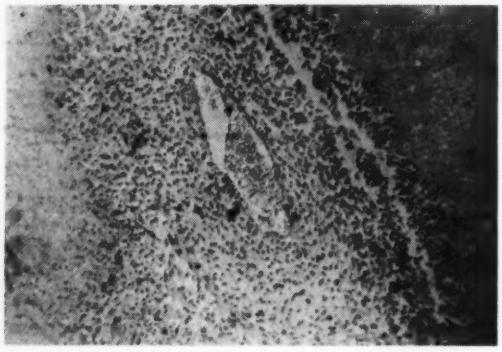


Figure 4

probably primary, possibly secondary from the urinary tract, in the rostral portion of the left cerebellopontine angle involving the fifth, seventh and ninth nerves, the pyramids, and the left temporal lobe.

Clinical Diagnosis:

Space-occupying lesion.

Dr. J. Edward Stern's Diagnosis:

Space-taking, intracranial lesion in the left cerebellopontine angle involving the fifth, seventh and ninth nerves, the pyramids, and the left temporal lobe.

Anatomical Diagnosis:

1. Astrocytomata of brain, located in left frontal lobe and corpus callosum.

2. Meningeal gliomatosis.

Pathological Discussion
Dr. F. P. Bornstein:

On autopsy the significant findings were limited to the brain. The brain was edematous. Upon inspection, there was an obvious mass in the left frontal lobe which was yellowish-brown in color and measured about 3 cm. in greatest diameter. Upon further dissection, a second mass was found which was located in the corpus callosum. (Fig. 2) This

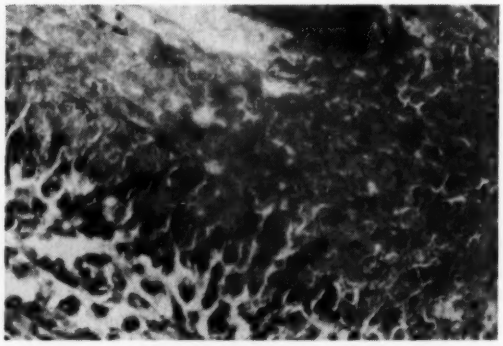


Figure 5

mass extended laterally, invading the inferior regions of both frontal lobes. Both masses were sharply demarcated and were of a homogenous, soft, friable and rather dry consistency. The interpretation of the nature of these masses presented quite a problem on histological examination. On very low magnification (Fig. 3), I was impressed with the extreme necrosis and vascularity of the mass and my first impression was that one was dealing with an inflammatory granuloma. This impression was somewhat strengthened by the presence of large, oval cells which were mainly arranged around blood vessels. (Fig. 4) On high power, the cells had single uniform nuceli, usually located at the margin of the cell, and large, oval cytoplasm which gave the cells a certain similarity to macrophages. (Fig. 5) However, on special stains, it became apparent that these cells elaborated thin, fibrillary projections which were laced into a fibrillary network. (Fig. 6) This appearance ruled out the inflammatory nature of these cells and characterized them as tumor cells, and, with this in mind, I made a diagnosis of gemistocytic astrocytoma. In many ways the histological picture is characteristic of such a tumor; however, the presence of several of these tumors represents a rather unusual occurrence.

In addition, while we were investigating the inflammatory nature of this lesion, we took sections from the meninges, in many places far distant to the tumors. To my greatest surprise, similar accumulations of tumor cells were found in such distant regions as the temporal lobe, the base of the brain and the medulla oblongata. (Fig. 7) These cell accumulations are composed of exactly the same type tumor cells as were seen in the two tumors. If such a condition has been described previously, I am not aware of it. It is certainly new in my experience. Be this as it may, the combination of the two space-occupying lesions, one in the frontal lobe and one in the corpus callosum, with the meningeal infiltration, adequately explains the clinical symptoms of personality change associated with a disturbance of many cranial nerves.

Dr. Nathan Kleban:

When distinct, although insidious, personality changes occur in a patient of this age group, an involutional depressive reaction, tumor of the frontal lobes in the region of the corpus callosum, Alzheimer's disease, compromised cerebral blood flow or paresis may be strongly suspected. There was no distinct line of demarcation between past complaints of many years' duration and character defenses, and those which reflected his final illness. To the fragmentary and perplexing history was added the confusion of contradictory laboratory reports. The initial CO_2 combining power reports were consistent with the presence of pulmonary emphysema but not with the degree of respiratory insufficiency. Determination of the cerebrospinal fluid, Wasserman and colloidal gold curve by a third laboratory was needed to settle the discrepancy in these reports. Had the positive reports been consistent and reliable, a Nelson Treponema pallidum immobilization test would have been required to determine whether we were dealing with a biologically false positive serological test for syphilis appropos the serious consideration of a gumma as the pathological diagnosis. Walshe states this is a rare entity. According to this neurologist, in an individual with a positive test for syphilis of the cerebrospinal fluid and signs and symptoms of an expanding intracranial lesion, the diagnosis is more likely that of glioma or related neoplasm in an individual with syphilis, rather than a gumma. Failure to respond to adequate penicillin therapy mitigated against this diagnosis. A consoling thought in the grim outcome of this patient's illness is that Dr. Stratemeyer would have had a long wait for a frozen section report. Dr. Bornstein has done a bit of diligent and imaginative sleuthing.

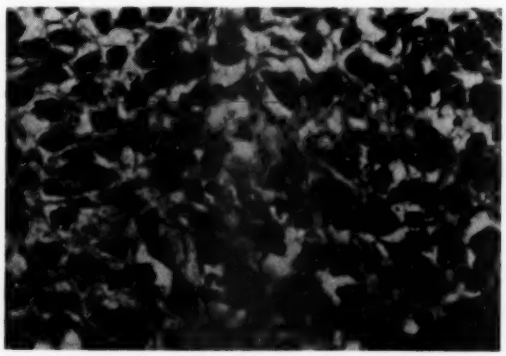


Figure 6

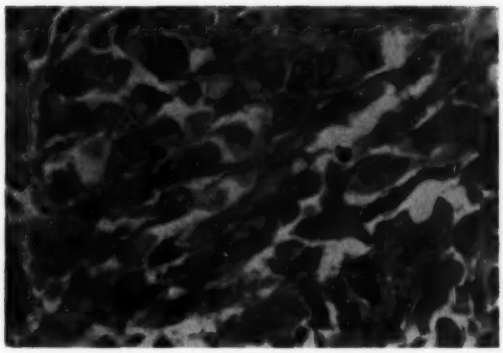


Figure 7

Dr. F. P. Bornstein:

I'd like to comment briefly on Dr. Kleban's statement as to the rarity of cerebral gummata. In reviewing the literature for this conference, I came upon a statement in Aschoff's text book of pathology, published in 1927, that gummata represent 15 per cent of all space-taking lesions in the brain. Obviously time and penicillin have wrought a change in this.

Congenital Pulmonary Stenosis With Intact Ventricular Septum*

(A Clinical and Physiological Correlation)

By Alexander S. Nadas, M.D., Benjamin K. Silverman, M.D.,**
and Walter T. Goodale, M.D.

From the Department of Pediatrics, Harvard Medical School, and from the Sharon Cardio-Vascular Unit and the Children's Hospital, Children's Medical Center, Boston

Pulmonary stenosis with intact ventricular septum has been recognized in recent years as one of the most common congenital cardiac malformations. Because an effective surgical procedure, valvulotomy, has been developed by Brock for the relief of the obstruction at the pulmonary orifice, the recognition and proper evaluation of patients with this condition are of utmost importance.

Forty-six patients, ranging in age from three months to twenty-one years, are presented. The diagnosis was proven by applying strict criteria to findings at cardiac catheterization in forty-one instances and at angiocardiography in two cases. The remaining three patients were studied at autopsy.

The clinical findings are summarized in Chart I.

The symptomatology of these patients consisted mainly of fatigue, exertional dyspnea and cyanosis. A harsh, well transmitted, systolic murmur, frequently accompanied by a thrill and diminished second pulmonic sound, was present at the upper left sternal border in all patients.

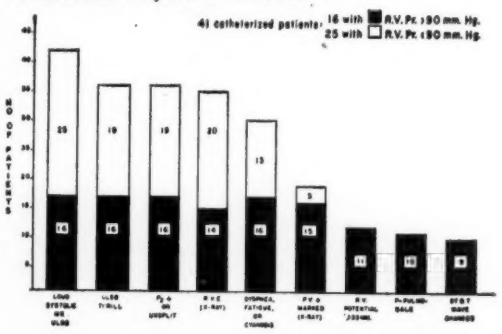
Common Findings

The most common radiological findings were isolated right ventricular enlargement with prominent main pulmonary artery segment and varying degrees of diminution of the pulmonary vasculature. Right ventricular hypertrophy was present in the great majority of the electrocardiograms. The tracings with right ventricular potentials greater than 20 mm were likely to show p-pulmonale and right-sided ST and T wave changes.

Analysis of the physiological data revealed a variation of the right ventricular systolic peak pressures at rest through a wide range from 250 to 40 mm Hg. Mean pulmonary artery pressures, on the other hand, consistently fell between 10 and 30 mm Hg. The peripheral arterial saturation was below 90% in only seven patients. It was assumed that these had a patent foramen ovale or an atrial septal defect. Forty-three patients had a valvular type of stenosis as judged by catheterization or operation, the other three had an infundibular type of obstruction.

*These condensations published by special permission of the New England Cardiovascular Society.
*Supported in part by a Grant from the National Heart Institute, Public Health Service.
** Trainee, National Heart Institute

Clinical Data Related to Right Ventricular Systolic Pressure



Correlating the clinical picture with the right ventricular systolic peak pressure, Figure 1, we found that the patients tended to fall into two distinct categories. One group of sixteen patients with right ventricular pressure of 90 mm Hg or over (black columns) could be identified clinically either by the presence of significant symptomatology, by electrocardiographic evidences of marked right ventricular hypertrophy or by markedly diminished pulmonary vasculature by x-ray. Not all of the patients within the high pressure group showed all these criteria, but one of the three was present in every member of this group.

In contrast to this group with high right ventricular pressure were the twenty-five patients with right ventricular pressure of less than 90 mm Hg, designated by the white columns in the chart. Although the symptomatology of these patients was commonly indistinguishable from that of the high pressure group, they were identifiable by the lesser degree of right ventricular hypertrophy and by the relatively better developed pulmonary vasculature. The final point demonstrated by Figure 1 is the fact that the character of the murmur, the intensity of the pulmonic second sound and the degree of right ventricular enlargement by x-ray did not reflect on the height of the right ventricular pressure.

Four Infants

There were four infants among our forty-six patients who were characterized by the signs and symp-

toms of the patients with pressures over 90 mm Hg and by gross cardiomegaly with congestive failure. All of these children died.

We feel that patients in the group with right ventricular pressures below 90 mm Hg do not need surgery now. They should, however, be followed for any change in their status. The group with pressures above 90 mm Hg will probably come to surgery eventually, at a time determined by the severity and the progression of their signs and symptoms. The infants with large hearts and congestive failure should be regarded as emergencies and operated on as soon as possible.

CHART I

Clinical Findings in Forty-Six Patients with Pulmonary Stenosis with Intact Ventricular Septum

Symptoms:

Fatigue	28
Dyspnea	26
Cyanosis	22
Syncope spells	7
Epistaxis	6
Squatting	3
Failure	3
Rheumatic Fever	0
Asymptomatic	11

Signs:

ULSB[1] Murmur	46
Thrill	40
Diminished or narrow second pulmonic sound	39
Cyanosis	17
Underdevelopment	12
Clubbing	9
Hepatomegaly	3

Electrocardiogram (45 patients):

RVH[2]	39
P-pulmonale	12
ST and T wave changes	9
IRBBB[3]	19

X-ray (45 patients):

RV[4] Enlargement	37
Prominent pulmonary artery	28
Pulmonary vasculature diminished	
Markedly	20
Moderately	6
Gross cardiomegaly	4
Right aortic arch	0

1 Upper Left Sternal Border
2 Right Ventricular Hypertrophy
3 Incomplete Right Bundle Branch Block
4 Right Ventricular (Enlargement)

Treatment of Coarctation of the Aorta By the Use of Aortic Homografts

By Robert E. Gross, M.D., The Children's Medical Center, Boston

To November 1, 1953, 42 patients have been treated by excision of a coarctation and insertion of aortic homografts.

Three types of grafts have been employed:

First, in 21 subjects the graft was taken from the donor's body under aseptic conditions and was stored at 4°C in "balanced salt solution".

Second, one patient was treated with a graft which had been taken under aseptic conditions, frozen immediately with carbon-dioxide ice snow (—50C) and thus kept until the time it was employed in the recipient.

Third, 20 patients have been treated by grafts which were taken from donors in an aseptic fashion, were then immediately frozen to —50C by carbon-dioxide snow, and then sterilized by high voltage cathode-ray irradiation (1,500,000 to 2,000,000 R. E. P.)

Balanced Solution

While we had originally favored the method of using the "balanced salt solution" as a preservative, it soon became clear that since these vessels could not be kept for more than five or six weeks, there was a great problem in gathering suitable vessels and maintaining an adequate supply for the irregular demand. This factor alone has now led us to almost completely abandon this method of storage; we have turned to the use of frozen (CO_2) grafts, sterilizing them with the high voltage cathode-ray irradiation. The latter seems to be satisfactory for us in every way as far as simplicity of method, ease of storage, and conveniently long periods of storage are concerned. The results attained for patients in whom they have been used to re-establish aortic pathways are almost perfect. (We have found that sterilization by cathode-ray irradiation is completely reliable, but unfortunately such an apparatus is available in only a few centers in the country.)

In our 42 patients, there were 3 fatalities within the hospital: 2 from renal failure and 1 from pulmonary embolism. It was obvious that these deaths were not in any way related to the grafting itself.

One patient died about six months following discharge from the hospital after running a course for about two months which suggested sepsis and was later proved to be so. Death occurred from bacteremia, formation of bacterial vegetations at the lower end of the graft, and embolization to a mesenteric artery. The graft employed in this case had been preserved in "balanced salt solution". Whether infection

had been introduced into the patient at operation or developed spontaneously after hospital discharge is impossible to say. (A second graft from the *same* donor, preserved in the *same* way, was used in another patient with a completely satisfactory result.)

In 3 patients, x-ray films show a slight deposit of calcium within the graft. In no patient has there been any evidence by x-ray examination of aneurysm formation in the graft.

38 Patients

The 38 living patients have been followed rather closely to date. The over-all picture is an exceedingly gratifying one. Two individuals have an incomplete relief of hypertension, but the arm pressures have been reduced so greatly from the preoperative levels that we have listed the end result as "good". In one patient, early observations made us feel that the graft had become occluded by thrombus, but further study by aortograms shows the pathway to be completely normal in size. This patient's pressures have subsequently fallen to satisfactory, but not completely normal levels and is one of the cases that we have listed as "good". In 36 patients, the arm pressures have fallen postoperatively to completely normal levels.

The length of time that the grafts have been in place is indicated by the following table:

Years ago that the graft was inserted	Number of Cases
5	5
4	5
3	8
2	8
1	13
less than 1	3
Total	42

The first graft for the reconstruction of an aortic pathway was inserted in May, 1948. Today, this patient is perfectly well in every way, has a normal pressure in the upper part of the body, has a normal pressure in the legs, and by x-ray examination has no evidence of calcification or dilatation of the graft.

We do not know how the grafts are going to look several decades hence, but from the picture to date, we are very optimistic about the use of aortic homografts for reconstruction of an aortic pathway.

Clinical Course of Subcutaneous Nodules In Rheumatic Fever, and Its Significance In Relation to Treatment With ACTH and Cortisone

By Benedict F. Massell, M.D., and Alexander J. MacDonald, M.D.,
The Children's Medical Center, Boston

Opinions differ widely regarding the therapeutic value of cortisone and ACTH in rheumatic fever. Fundamental to this problem is the degree to which the rheumatic inflammatory process in the heart can be suppressed. The effect of the hormones on the readily observable subcutaneous nodules of rheumatic fever offers indirect evidence concerning such suppressive action because valvular damage occurs in 95% of children with nodules and because the microscopic architecture of the nodule is strikingly similar to the rheumatic lesions in the heart.

To determine the effect of cortisone and ACTH, the duration of nodules is being observed in hormone treated patients and in patients not treated with hormones. Variables which might influence the results are being evaluated.

In patients not treated with hormones nodules usually persist for long periods. In 45 patients definite nodules were still present after eight weeks in 83%, after four months in 52%, and after one year in 11%. Many of these patients had been receiving salicylates when the nodules developed and for varying periods during which the nodules persisted. In contrast, in all of 17 patients treated with cortisone or ACTH the nodules became detectably smaller within one or two weeks and completely disappeared within four to eight weeks. Nodules did not develop during hormone therapy.

It is concluded that cortisone and ACTH have a marked suppressive effect on the subcutaneous nodule and that in all probability they have a similar effect on the comparable inflammatory process in the heart.

Dr. Hollis Brainard of Tucson.....

(Continued from Page 598)

Mexico. In the future the regular circulation of the journal will be expanded to include those members of the Southwest Obstetrical and Gynecological Society in Southern California and Nevada.

Founded

The Southwest Obstetrical and Gynecological Society was founded five years ago "to aid in the advancement of knowledge and in the improvement of Obstetrical and Gynecological practice in the Southwest United States." Inasmuch as there are no medical schools in the area covered by the Society, the group meets annually to hear outstanding men in its field. The meeting is a family affair for physicians and their wives and is designed to provide an opportunity for the discussion of common problems in the field of Obstetrics and Gynecology.

Membership

Membership is not restricted to Obstetricians and Gynecologists and is open to general practitioners who have a special interest in the practice of Obstetrics and Gynecology.

Membership in the Society may be acquired through the following steps: presentation of a letter of application to the Society's secretary with the endorsement of three members; approval of the application by the Society's council; and the payment of $25. The group is intended to be a select society with a high percentage of its membership in attendance at meetings.

At the meeting it was announced that the District 8 meeting of the American Academy of Obstetrics and Gynecology will be held in Tucson April 9-11, 1956, with headquarters in the Pioneer Hotel. District 8 includes the 11 western states, British Columbia, Alberta and Saskatchewan in Canada, and Alaska and Hawaii. Dr. H. S. Rhu, Jr., of Tucson is in charge of plans for the meeting.

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1. Bender, T. J. Jr.: at Mtg. Med. Assoc. of Alabama, Mobile, 1954.
2. Bishop, R., Murray, R. J. and Neal, A.: Amer. Pract. & Dig. of Treatment, 5:792, 1954.

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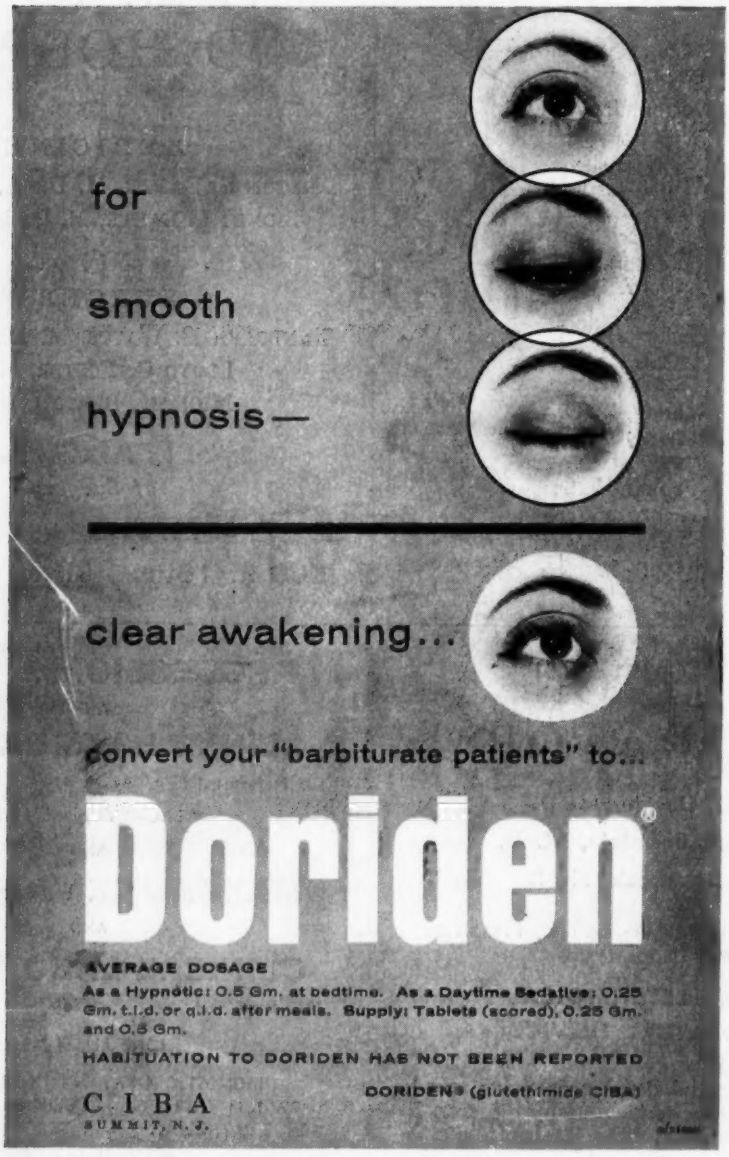
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